WHAT IS CLAIMED IS:

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1. An information recording/reproducing apparatus that performs reading and writing of information with respect to an information recording medium in which user data areas and alternative areas

10 are alternately arranged, said apparatus comprising:

means for assigning, when an error occurs in a certify process or a verify process with respect to one of the user data areas and an alternative destination is to be assigned, in the case where an unused field does

15 not exist in the alternative area corresponding to the user data area in which the error occurs, the alternative destination in another alternative area on which the certify process or the verify process is performed.

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2. The information recording/reproducing

25 apparatus as claimed in claim 1, further comprising:

means for performing, when the error occurs in
the certify process or the verify process and the
alternative destination is to be assigned, in the case
where the certify process and the verify process are not
5   performed on the alternative area having the alternative
destination, the certify process and the verify process
on the alternative area having the alternative
destination; and

means for assigning, when an error occurs in
10   the certify process or the verify process performed by
said means for performing the certify process and the
verify process, the alternative destination in an
alternative area other than the alternative area in
which the error occurs.

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3. The information recording/reproducing
20   apparatus as claimed in claim 1, further comprising:
means for performing the certify process and
the verify process on the alternative area first before
the user data area; and

means for registering, as a position the use
25   of which is prohibited, a position in the alternative

area at which position an error occurs in the certify

process or the verify process performed by means for

performing the certify process and the verify process.

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    4. The information recording/reproducing

apparatus as claimed in claim 1, further comprising:

10   means for maintaining a position at which the

error occurs when the certify process or the verify

process is performed on the one of the user data areas;

and

    means for assigning, after the certify process

15   and the verify process are performed on the alternative

area, the alternative destination with respect to the

user data area having the maintained position.

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    5. An information recording/reproducing

apparatus that performs recording and reproducing of

information with respect to a recording medium having a

25   plurality of user data areas for recording user data

therein and a plurality of alternative areas
corresponding to the respective user data areas and each
having an alternative field for replacing a defect field
in the user data areas, said apparatus comprising:

5   a defect field detection part that detects a
defect field at the time of a format process or
recording of information;

          a first usable field determination part that
determines whether an alternative field allowing
10   replacement exists in the alternative area corresponding
to the user data area having the defect field detected
by said defect field detection part; and

          a first alternative field assigning part that
assigns, when said first usable field determination part
15   determines that the alternative field does not exist, as
an alternative field for the defect field, an
alternative field allowing replacement in another
alternative area to which the format process is
performed.

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          6. The information recording/reproducing
25   apparatus as claimed in claim 5, further comprising:

a formatted alternative area determination part that determines whether an alternative area exists on which the format process is performed;

a second alternative field assigning part that assigns, when said formatted alternative area determination part determines that an alternative area does not exist on which area the format process is performed, a predetermined alternative field in an alternative area on which the format process is not performed as an alternative field for the defect field; and

an alternative field format process part that performs the format process on the alternative field assigned by said second alternative field assigning part.

7. The information recording/reproducing apparatus as claimed in claim 6, further comprising:

a use prohibition part that, when the defect detection part detects an alternative field on which the format process is performed by the alternative field format process part as a defect field, prohibits use of the defect field,

wherein the second alternative field assigning part assigns, as an alternative field for the defect field, another alternative field in the alternative area including the alternative field the use of which is

5 prohibited by said use prohibition part.

10 8. The information recording/reproducing apparatus as claimed in claim 6, further comprising:

a second usable field determination part that determines, when the formatted alternative area determination part determines that an alternative area

15 exists on which the format process is performed, whether an alternative field allowing replacement exists in the alternative area on which the format process is performed,

wherein, when the second usable field

20 determination part determines that an alternative field allowing replacement does not exist, the second alternative field assigning part assigns, as an alternative field for the defect field, a predetermined field in an alternative area on which the format process

25 is not performed.

5   9. The information recording/reproducing
apparatus as claimed in claim 7, further comprising:
          a second usable field determination part that
determines, when the formatted alternative area
determination part determines that an alternative area
10   exists on which the format process is performed, whether
an alternative field allowing replacement exists in the
alternative area on which the format process is
performed,
          wherein, when the second usable field
15   determination part determines that an alternative field
allowing replacement does not exist, the second
alternative field assigning part assigns, as an
alternative field for the defect field, a predetermined
field in an alternative area on which the format process
20   is not performed.

25   10. An information recording/reproducing

apparatus that performs recording and reproducing of

information with respect to a recording medium having a

plurality of user data areas for recording user data

therein and a plurality of alternative areas

5   corresponding to the respective user data areas and each

having an alternative field for replacing a defect field

in the user data areas, said apparatus comprising:

        an alternative area format process part that

performs a format process on the alternative areas

10   separately from the user data areas;

        a defect field detection part that detects a

defect field existing in the alternative area at the

time of the format process by said alternative area

format process part; and

15   a use prohibition part that prohibits, when

the defect field is detected by said defect field

detection part, using the defect field as the

alternative field.

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        11. An information recording/reproducing

apparatus that performs recording and reproducing of

25   information with respect to a recording medium having a

plurality of user data areas for recording user data

therein and a plurality of alternative areas

corresponding to the respective user data areas and each

having an alternative field for replacing a defect field

5   in the user data areas, said apparatus comprising:

an error detection part that detects an error

that occurs at the time of a format process;

a usable field determination part that

determines whether a field allowing replacement exists

10   in the alternative area corresponding to the user data

area in which the error detected by said error detection

part occurs;

an error occurrence position information

maintaining part that maintains, when said usable field

15   determination part determines that the field allowing

replacement does not exist, information relating to a

position at which the error occurs; and

an alternative field assigning part that

assigns, after the format process ends, an alternative

20   field for replacing the defect field based on the

information maintained by said error occurrence position

information maintaining part.

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12. A program for causing a computer to carry out:

a procedure that performs recording and

5   reproducing of information with respect to a recording

medium having a plurality of user data areas for

recording user data therein and a plurality of

alternative areas corresponding to the respective user

data areas and each having an alternative field for

10   replacing a defect field in the user data areas;

a defect field detection procedure that

detects the defect field at the time of recording of

information or a format process;

a first usable field determination procedure

15   that determines whether an alternative field allowing

replacement exists in the alternative area corresponding

to the user data area having the defect field detected

in said defect field detection procedure; and

a first alternative field assigning procedure

20   that assigns, when said first usable field determination

procedure determines that the alternative field does not

exist, an alternative field allowing replacement in

another alternative area to which the format process is

performed as an alternative field for the defect field.

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13. A program for causing a computer to carry

5   out:

a procedure that performs recording and
reproducing of information with respect to a recording
medium having a plurality of user data areas for
recording user data therein and a plurality of

10   alternative areas corresponding to the respective user
data areas and each having an alternative field for
replacing a defect field in the user data areas;

an alternative area format process procedure
that performs a format process on the alternative areas

15   separately from the user data areas;

a defect field detection procedure that
detects, at the time of the format process in said
alternative area format process procedure, a defect
field existing in the alternative areas; and

20   a use prohibition procedure that prohibits,
when the defect field is detected in said defect field
detection procedure, use of the defect field as an
alternative field.

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14. A program for causing a computer to carry out:

5   a procedure that performs recording and reproducing of information with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user

10   data and each having an alternative field for replacing a defect field in the user data areas;

           an error detection procedure that detects an error that occurs at the time of a format process;

           a usable field determination procedure that

15   determines whether an alternative field allowing replacement exists in the alternative area corresponding to the user data area in which the error detected in said error detection procedure occurs;

           an error occurrence position information

20   maintaining procedure that maintains, when said usable field determination procedure determines that the alternative area does not exist, information relating to a position at which the error occurs; and

           an alternative area assigning procedure that

25   assigns, after the format process ends, an alternative

field for replacing the detect field based on the information maintained in said error occurrence position information maintaining procedure.

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15. A computer-readable recording medium recording a program for causing a computer to carry out;

10   a procedure that performs recording and reproducing of information with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user

15   data areas and each having an alternative field for replacing a defect field in the user data areas;

              a defect field detection procedure that detects the defect field at the time of recording of information or a format process;

20   a first usable field determination procedure that determines whether an alternative field allowing replacement exists in the alternative area corresponding to the user data area having the defect field detected in said defect field detection procedure; and

25   a first alternative field assigning procedure

that assigns, when said first usable field determination procedure determines that the alternative field does not exist, an alternative field allowing replacement in another alternative area to which the format process is

5   performed as an alternative field for the defect field.

10   16. A computer-readable recording medium recording a program for causing a computer to carry out:

        a procedure that performs recording and reproducing of information with respect to a recording medium having a plurality of user data areas for

15   recording user data therein and a plurality of alternative areas corresponding to the respective user data areas and each having an alternative field for replacing a defect field in the user data areas;

        an alternative area format process procedure

20   that performs a format process on the alternative areas separately from the user data areas;

        a defect field detection procedure that detects, at the time of the format process in said alternative area format process procedure, a defect

25   field existing in the alternative areas; and

a use prohibition procedure that prohibits, when the defect field is detected in said defect field detection procedure, use of the defect field as an alternative field.

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17. A computer-readable recording medium

10 recording a program for causing a computer to carry out:

a procedure that performs recording and reproducing of information with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of

15 alternative areas corresponding to the respective user data areas and each having an alternative field for replacing a defect field in the user data areas;

an error detection procedure that detects an error that occurs at the time of a format process;

20 a usable field determination procedure that determines whether an alternative field allowing replacement exists in the alternative area corresponding to the user data area in which the error detected in said error detection procedure occurs;

25 an error occurrence position information

maintaining procedure that maintains, when said usable

field determination procedure determines that the

alternative area does not exist, information relating to

a position at which the error occurs; and

5   an alternative area assigning procedure that

assigns, after the format process ends, an alternative

field for replacing the detect field based on the

information maintained in said error occurrence position

information maintaining procedure.

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18. A defect field management method of

15 managing an alternative field with respect to a

recording medium having a plurality of user data areas

for recording user data therein and a plurality of

alternative areas corresponding to the respective user

data areas and each having an alternative field for

20 replacing the defect field in the user data areas, said

method comprising the steps of:

detecting the defect field at the time of

recording of information or a format process;

determining whether an alternative field

25 allowing replacement exists in the alternative area

corresponding to the user data area having the detected defect field; and

assigning, when said step of determining determines that the alternative field allowing replacement does not exist, an alternative field allowing replacement in another alternative area on which the format process is performed as an alternative field for the defect field.

19. A defect field management method of managing an alternative field with respect to a recording medium having a plurality of user data areas for recording user data therein and a plurality of alternative areas corresponding to the respective user data areas and each having an alternative field for replacing the defect field in the user data areas, said method comprising the steps of:

performing a format process on the alternative areas separately from the user data areas;

detecting, at the time of the format process in said step of performing the format process, a defect field existing in the alternative areas; and

prohibiting use of the detected defect field
as the alternative field.

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20. A defect field management method of
managing an alternative field with respect to a
recording medium having a plurality of user data areas
10 for recording user data therein and a plurality of
alternative areas corresponding to the respective user
data areas and each having an alternative field for
replacing the defect field in the user data areas, said
method comprising the steps of:
15 detecting an error that occurs at the time of
a format process;
determining whether an alternative field
allowing replacement exists in the alternative area
corresponding to the user data area in which the
20 detected error occurs;
maintaining, when the step of determining
determines that the alternative field allowing
replacement does not exist, information relating to a
position at which the error occurs; and
25 assigning, after the format process ends, an

alternative field for replacing the defect field based on the information maintained in the step of maintaining the information.